From: Lee R. Pedowicz
Sent: Monday, October 27, 2014 2:46 PM
To: Parker, Darius (darius.parker@siemens.com)
Cc: Guy V. Zito; Gerard J. Dunbar; Rui Da Shu; Quoc;
paul.difilippo@HydroOne.com; Ben Eng; Scott A. Nied
Subject: FW: PRC-002-NPCC-01 Requirements

Good afternoon, Mr. Parker.

The Task Force on System protection has put your concerns on the Agenda for their Nov. 18-20,
2014 meeting.

Lee

From: Lee R. Pedowicz
Sent: Monday, October 27, 2014 10:28 AM
To: 'Parker, Darius'
Cc: Guy Zito (gzito@npcc.org); Gerard J. Dunbar; Rui Da Shu
Subject: RE: PRC-002-NPCC-01 Requirements

Good morning, Mr. Parker.

I've forwarded your questions to NPCC's Task Force on System Protection. Please let me know
when you hear from them.

Please don't hesitate to contact me if you have any questions.

Lee Pedowicz

From: Parker, Darius [mailto:darius.parker@siemens.com]
Sent: Wednesday, October 22, 2014 2:29 PM
To: npccstandard
Cc: Parks, Nicholas; Becker, Farel
Subject: PRC-002-NPCC-01 Requirements

Good afternoon,

I have questions regarding your DDR requirements for continuous recording. Siemens is looking to
update our existing Digital Fault Recorder to comply with this standard.

-          R9: 9.2 Can you please explain the 960 samples per second/6 data points per second? I understand this to mean that the DDR should be monitoring the each RMS values at 960 samples per second, but only storing 6 data points per second. Please confirm.

TFSP Response: R9 requires a minimum recording sampling rate of 960 samples per second or 16 samples per cycle of the analog channel. R9 requires a minimum storage rate of 6 data points per second or 10 hertz for each RMS value.

-          R10: 10.1 Should all three line currents be monitored or just from one phase? Same question for bus voltage.

TFSP Response: R10.3 requires, at each DDR installation, a minimum of one phase current and the same phase voltage to neutral be monitored as well as another phase voltage to neutral of a different element be monitored.

-          R10: 10.3-10.5 Should each circuit element (breaker) report the frequency and real and reactive power as well as the 2 voltages and 1 current?

TFSP Response: R10.3-R10.5 require, at each DDR installation, the station bus

frequency and the real and reactive power of an element at this DDR installation be either monitored or derived as stated in R10. It is not the intent of this requirement to monitor individual breaker current.

- R16:16.1 I understand that files should be created in the COMTRADE file format for the DDR records. Please confirm.

TFSP Response: R16.1 requires that the data files provided by the entity "be capable of being viewed, read, and analyzed with a COMTRADE analysis tool as per the latest revision of IEEE Standard 37.111." This means that the data files from the DDR can be in COMTRADE format or a tool be provided to convert the DDR data files into the COMTRADE file format.

- Is there any specific communication protocol that should be used to transmit the information according to the standard?
TFSP Response: The standard does not recommend a specific communication protocol be used to transmit the information.

- Because this is a continuous recorder, how often should the files be exported, or saved? (For
example should a COMTRADE file be created daily per circuit element?)
TFSP Response: NERC Standard PRC-018-1, R1.2 requires data retention for ten calendar days. The NERC Standard must be read in conjunction with the Regional Standard.

- How long is the information required to stay on the DDR device itself before it is overwritten?
TFSP Response: See response above.

I have copied some people from our team who have been working to make our device compliant. Thank
you for your help.

Sincerely,

Darius Parker | Field Application Engineer

Siemens Industry, Inc.
Infrastructure & Cities Sector
Smart Grid Division
Energy Automation / PRO

7000 Siemens Road
Wendell, NC 27591
phone: +1 (860) 830-4675
email: darius.parker@siemens.com

For Technical support on relays, substation automation, and RTU products:
8AM to 5PM Eastern: (877) 217-4943.
After hours, weekend, and holidays: (877) 742-3309

FW PRC-002-NPCC-01 Requirements-Questions-TFSP_Responses
your cooperation